SUGGESTED SPECS

Step-by-step guide to configuring the Best Emergency Lighting System for you.

Notes:

A yellow box { } has been provided for your requirements. Please read carefully and fill in all the appropriate information.

1. GENERAL

1.1 Scope

BEST-Lites Central Inverter System shall be furnished to provide a reliable source of power and shall operate during a utility line deficiency without any interruptions of power supplied to the load. The transfer from utility power to battery power shall utilize a true no-break,sine wave output system to maintain a zero transfer time. The system shall be capable of powering any combination of electronic ballast,power factor corrected ballast, and self-ballasted fluorescent,incandescent or HID lighting, building management systems,and any other critical emergency or frequency-sensitive electronic loads. The systems shall operate loads at 0.5 lagging to 0.5 leading from 0-100% loading and be rated to deliver its full KW rating at unity power factor. Upon return of the normal AC utility line power, the system shall recharge the batteries within 24 hours without any interruptions of power supplied to the load. Upon an inverter failure, the load shall automatically connect to the AC utility line. Line power shall constantly pass through the ferroresonant transformer to provide continuous,on-line, conditioned power.

1.2 Codes & Standards

The Central Inverter System will be UL and/or ETL listed (cUL listed for Canadian applications).
APPLICABLE CODES AND STANDARDS INCLUDE:
UL924 Standard for Emergency Lighting and Power Equipment;UL1778 Standard Uninterruptible Power Supplies;ANSIC62.41;ANSIC62.45 (Cat. A & B);ANSI/UL1778;FCC Class A
Comply to NEC, OSHA and Life Safety Code

2. PRODUCT

2.1 Manufacturer

The Central Inverter System specified herein shall be the BEST-Lites Series U supplied by Myers Power Products,Inc.,Bethlehem, PA.

2.2 Category and Type

Furnish and install a Myers Power Products,Inc. BEST-Lites Series U System that will supply a minimum of KW at 60 Hz for a period of hours upon interruption,brownout,or failure of the monitored AC utility line.

2.3 Operation

The system,utilizing a ferroresonant transformer with a soft start circuit and surge protection devices,shall maintain a 2000-1 spike attenuation and meet ANSI/EEE C62.41 and C52.45 tests in both Category A and Category B.

The system's automatic-overload and short circuit protection of the inverter in normal and emergency operations shall consist of 150% momentary surge capability and 110% overload for 10 minutes. The system protection shall also include a low-battery voltage disconnect. The system shall supply a sinusoidal output waveform with 5% or less total harmonic distortion at rated load. Dynamic brownout protection will maintain the desired voltage without continuously switching to batteries in low voltage situations.

The continuous run circuitry is designed to run as long as the batteries retain sufficient capacity. Units that shut down due to thermal runaway or programmed time limits are not acceptable.

The system shall consist of circuitry including an automatic, multi-rate, software-controlled charger; self-diagnostic, programmable system testing capabilities with automatic recording of test results;a microprocessor-controlled, removable, diagnostic display panel capable of audible alarms and visual displays with automatic recording of all alarm and inverter events;a DC to AC converter (inverter); AC and DC input protection;a battery-bank sized for the system's runtime requirements and full KW rating at unity power factor; and an RS232 communication interface with selectable transmission rates of 50 to 38,400 baud.

2.4 Input Voltage

The input voltage on the central inverter system shall be volts,+15 to-20%, phase, wire with a frequency of 60Hz. The system shall have an AIC rating of 42,000 RMS symmetrical amperes.

2.5 Output Voltage

The output voltage(s) of the BEST-Lites Series U System shall be a sine wave, volts (additional output voltage(s) shall be volts and volts,if required),+5 to -8.3%, phase, wire with a frequency of 60 Hz ± 0.05 Hz on inverter. The frequency output on utility AC power shall be as supplied by the utility.

2.6 System Diagnostics

The system's display panel shall include an array of LED lights,a 16-character display, and a color-coded keypad to control and monitor the system. The array of LED lights shall monitor the AC utility presence (green),system ready status (green),battery charging status (green),battery emergency operation (amber),and alarm functions (red). The system shall provide for the displaying of over 150 system parameters,operating modes, alarms,and acknowledgment of alarms. To ensure only authorized personnel can operate the unit,the system shall be password protected for all control functions,including parameter changes. The system will have the capability to display 21 meter functions including: output AC current,input and output AC voltage, volt-amp output, volt-amp limit,battery current and voltage, estimated runtime left,frequency, power factor, wattage, ambient, heatsink,transformer, and power-factor module temperature, full load percentage, system test results,total number of power outages, overloads, inverter minutes,and minutes the system has been on. The system shall be completely microprocessor-controlled.

2.7 Alarms

The system shall have 21 audible and visual alarms with automatic logging of the 20 most recent alarm events.Each alarm will have a corresponding Morse Code audible signal associated with it to aid in the troubleshooting of the system. The system's alarm acknowledge feature shall enable the user to silence only the current audible alarm(s) while not silencing other alarms and not clearing the alarming condition until the fault has been cleared. Alarms shall monitor low, near low, and high battery voltage, high AC voltage input,high and low AC voltage output, volt-amp output overload,low runtime left,high ambient,heatsink,transformer, and power-factor module temperature, temperature probe missing,check charger, battery, inverter, and memory/logic, emergency power off activated,user test check, circuit breaker tripped,and call service.

2.8 Manual & Programmable Testing

The BEST-Lites Series U System shall incorporate a manual test function and three automatic test modes. The user shall be able to perform a system test at any time. The system shall also perform a programmable, weekly, self-diagnostic test of its subsystems to insure the system will operate in an emergency condition,a monthly test for a user programmable discharge time of minutes (5-minute default),and an annual test for a complete runtime discharge of minutes (90-minute default). Automatic recording in memory, of the last 20 inverter events,including all automatic weekly and user programmed tests,shall be logged.

2.9 Battery Charger

The software-controlled,three-step charger with equalize shall charge the batteries continuously during the normal utility line condition in one of two distinct modes - float or hysteresis. Immediately following a return to the normal utility power, the charger shall automatically soft start to recharge the batteries at a constant current within 24 hours. The charger shall then apply an automatic boost charger (equalize) to assure that the batteries are at full capacity. The charger shall contain visual display parameters and one LED indicator to allow visual monitoring of the charger status.

2.10 Batteries

The batteries will provide sufficient power to maintain the output voltage of the inverter for a period of hours,maintaining 87.5% of nominal battery voltage. The batteries shall be enclosed in a cabinet that permits easy maintenance without requiring removal from it and shall be of the

type:(check one)

Sealed Lead Calcium, VRLA(S): Requires no additions of water over the life of the battery. The case and cover shall be constructed of polypropylene, contain low-pressure safety release vents,and be non-gassing in normal use. 10-year design life expectancy.

Sealed Lead Calcium (G): Requires no additions of water over the life of the battery. 20-year life expectancy at 80° F (27° C).

Nickel Cadmium (N): Pocket plate construction with a translucent case. 25-year design life expectancy.

2.11 BEST-Lites System Options

The following optional equipment shall be provided with the system (check all the apply):

Charger Upgrade: The standard software-controlled,three-step battery charger with equalize is model specific for the size provided, but can be increased in size.

10 amp charger 20 amp charger

Normally OFF Relay (NOR):

Protected with circuit breaker(s) at volts AC.

Output Circuit Breakers with alarms (OCBs): Maximum of 10 positions are available. 120 and 277 VAC breakers utilize one position each while 208 and 240 VAC breakers utilize two.

(quantity) of OCBs rated at amps, volts AC.

(quantity) of OCBs rated at amps, volts AC.

(quantity) of OCBs rated at amps, volts AC.

UL 924 Auxiliary Lighting Listing available for A BEST-Lites System supported by a minimum battery supply and a generator.

Optional Runtime: (UL 924 and the NEC require a minimum of 90 minutes.)

two hours three hours four hours other (specify)

Remote Terminal Strip: An auxiliary terminal strip located within the system cabinet provides connection points for remote monitoring of inverter status and alarm indication.

2.12 BEST-Lites System Accessories

The following accessories shall be provided with the system (check all that apply):

Maintenance Bypass Switch: For increased safety;permits the transfer of protected equipment to direct AC utility power when maintenance is to be performed on the Central Inverter System.

Break-Before-Make (BBM)

Make-Before-Break (MBB)

Remote Control Panel: Permits greater flexibility and convenience to monitor and control the Central Inverter System from a remote location.

CheckUPS-Software: Allows user to monitor and control the Central System from a remote computer. Can also monitor power quality at the site.

2.13 Maintenance, Service and Enhanced Warranty Plans:

The following plan(s) shall be offered to assure initial and long term viability of the BEST-Lites Central Inverter System through additional maintenance and service plans and/or through enhancements to the standard two-year electronics limited warranty.

Factory Startup: FS The factory shall provide Field Service Technician(s) to inspect,energize and thoroughly test the operation of the BEST-Lites system following installation and provide hardcopy report(s) of satisfactory performance. Following initial startup, the Field Service Technician(s) shall instruct owner personnel in procedures necessary for proper operation,monitoring,programming and maintenance.

Enhanced Protection Plan with Maintenance & Startup: EPM This plan includes Startup, priority service response including all parts and labor (travel and site),two proactive unit and battery preventative maintenance visits per year.

Enhanced Protection Plan & Startup: EPS This plan includes Startup and priority service response including all parts and labor.

Maintenance & Startup: MS This plan includes Startup and two proactive unit and battery preventative maintenance visits per year. This plan also includes discounted pricing on all replacement parts and labor charges.

With the purchase of any plan, other than startup service (FS) we will provide, free of charge, any applicable software updates to be installed at the time of any planned visit.

2.14 Mechanical

The system shall be contained in a code gauge, NEMA 1 steel cabinet finished in a scratch resistant,off-white baked enamel finish with a key lock,conduit knockouts at the tip, and front-opening removable doors. The system shall include an air filtering system and a plenum to expel heated air from inside the unit.The system's reliability shall have a minimum rating of 160,000 hours MTBF. All components shall have a modular design and a quick disconnect means to facilitate field service.

3. EXECUTION

3.1 Wiring

All wiring shall be installed in conduit and shall be sized as required for voltage drop purposes to assure proper operation of connected loads.

3.2 System Operation

The system shall allow connection of both "normally on" or "normally off" loads. Connected loads shall be carried via the transfer circuit by the utility during normal operation or by the system inverter during utility failures without interruption.

3.3 Connected Loads

The BEST-Lites Central Inverter system shall be designed to maintain the normal operation and performance integrity of all connected loads including voltage and frequency sensitive equipment by providing true "no break",continually conditioned sinusoidal output. Refer to plans for type and location of loads server by the system.

3.4 Factory Startup

Provides a factory service representative to perform the initial startup of the BEST-Lites Central Inverter System. Refer to Section 2.13 for additional information.

3.5 Drawings and Manuals

Drawings and manuals supplied with each BEST-Lites System shall include:

Complete set(s) of shop drawings showing physical dimensions,mounting information and wiring diagrams.

Installation Manual(s) with complete instructions for locating,mounting,interconnection and wiring of the system.

User Manual(s) outlining complete operating and preventive maintenance procedures.

3.6 Installation

The BEST-Lites Central Inverter System shall be installed in accordance with all appropriate manufacturer's installation instructions and in compliance with all appropriate codes.

3.7 Warranty

The BEST-Lites System shall be guaranteed,under normal and proper use, against defects in workmanship and materials for a period of two years from the date of shipment.Batteries supplied as part of BEST-Lites Central Inverter Systems shall be covered under a separate pro-rata warranty as described below.

Sealed Lead-Calcium, VRLA (Type S) - One year full replacement warranty plus an additional nine years pro-rata.

Sealed Lead-Calcium, (Type G) - One year full replacement warranty plus an additional fourteen years pro-rata.

Wet Cell Nickel-Cadmium, (Type N) - One year full replacement warranty plus and additional fourteen years pro-rata.

3.8 Maintenance & Service

Maintenance and service programs will be made available by the supplier to assure long term viability of the BEST-Lites Central Inverter system. Refer to Section 2.13 for additional information.

BEST-Lites®
A Division of Myers Power Products